

Stockpile Report to the Congress

April — September 1983



FEDERAL EMERGENCY
MANAGEMENT AGENCY



Federal Emergency Management Agency

Washington, D.C. 20472

Honorable George Bush
President of the Senate

Honorable Thomas P. O'Neill, Jr.
Speaker of the House of Representatives

Sirs:

The Strategic and Critical Materials Stock Piling Act, as amended, provides that strategic and critical materials be stockpiled in the interest of national defense to preclude a costly and dangerous dependence upon foreign sources of supply in times of national emergency.

The President delegated stockpile planning and policy activities to the Director of the Federal Emergency Management Agency. This Stockpile Report to the Congress for April-September 1983 is submitted in accordance with Section 11 of the Stock Piling Act.

Sincerely,

Louis O. Giuffrida
Director

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INTRODUCTION

This report is prepared in accordance with Section 11 of the Strategic and Critical Materials Stock Piling Act (50 U.S.C. 98 *et seq.*). The format has been designed to effectively present the information needed by the Congress. Specific data required to be reported by this Act includes:

- “(1) information with respect to foreign and domestic purchases of materials during the preceding 6-month period;
- (2) information with respect to the acquisition and disposal of materials under this Act by barter, as provided for in Section 6(c) of this Act, during such period;
- (3) a statement and explanation of the financial status of the National Defense Stockpile Transaction Fund and the anticipated appropriations to be made from the Fund during the next fiscal year; and
- (4) such other pertinent information on the administration of this Act as will enable the Congress to evaluate the effectiveness of the program provided for under this Act and to determine the need for additional legislation.”

In response to the above requirements, this report is divided into four major sections: Stockpile Purchase Program, Barter Program, Financial Status of the National Defense Stockpile Transaction Fund, and Stockpile Program Support Activities.

HIGHLIGHTS

I. STOCKPILE PURCHASE PROGRAM

- Contracts for the purchase of six commodities, valued at \$88.3 million, were awarded by the General Services Administration (GSA).
- The Administrator of GSA was delegated authority by the U.S. Trade Representative to waive certain purchasing prohibitions contained in the Trade Agreement Act of 1979 to improve the competitive position of domestic producers.

II. BARTER PROGRAM

- On June 1, 1983, the President directed the U.S. Department of Agriculture (USDA) and GSA to begin another program with the Government of Jamaica to procure one million tons of Jamaican bauxite through agricultural barter.

III. FINANCIAL STATUS OF THE NATIONAL DEFENSE STOCKPILE TRANSACTION FUND

- Approximately \$267 million in National Defense Stockpile Transaction Funds have been obligated to purchase materials for the National Defense Stockpile (NDS) since inception of the Fund.

IV. STOCKPILE PROGRAM SUPPORT ACTIVITIES

- The U.S. Geological Survey and the Bureau of Mines, Department of the Interior, investigated mineral occurrences throughout the United States.

I. STOCKPILE PURCHASE PROGRAM

In Fiscal Year 1983, Congress provided \$120 million for the purchase of new materials for the National Defense Stockpile. During the report period, contracts for the purchase of six commodities, valued at \$88.3 million, were awarded (see Figure 1).

| Material | Unit | Quantity | Value | Country of Origin |
|-------------------|-------|-----------|--------------|-------------------|
| Bauxite | LDT | 800,000 | \$35,526,000 | Jamaica |
| Beryllium | LB | 60,000 | 14,340,000 | Domestic |
| Cobalt | LB | 6,500,000 | 35,750,000 | Zaire and Zambia |
| Platinum-Iridium | TR OZ | 3,600 | 1,140,000 | South Africa |
| Quinidine | OZ | 199,298 | 668,000 | Netherlands |
| Vanadium | ST(V) | 101 | 840,000 | Domestic |
| Total Obligations | | | \$88,264,000 | |

Figure 1

Stockpile purchases April 1 - September 30, 1983

II. BARTER PROGRAM

Between 1950 and 1967, the Department of Agriculture (USDA) conducted a barter program under which approximately 60 strategic materials, with a value of more than \$1.6 billion, were acquired from more than 50 different countries. These materials were added to the stockpile in exchange for agricultural commodities owned by the Commodity Credit Corporation (CCC), USDA. The last barter contract under that program was signed in 1967.

On June 1, 1983, the President directed the USDA and General Services Administration (GSA) to begin negotiating another program with the Government of Jamaica (GOJ) to procure one million tons of Jamaican bauxite through agricultural barter. Under this program, the CCC will hold title to the bauxite until Fiscal Year 1988, at which time GSA will begin a 3-year program to reimburse CCC for the value of the bauxite in exchange for title to the bauxite. GSA will pay shipping and site preparation charges out of its appropriate stockpile budgets as the bauxite is delivered. It is expected that the CCC will again furnish dairy products in exchange for the bauxite. The dairy products will be valued at world market prices and will be delivered to the GOJ free alongside ship at United States ports. The GOJ will pay the cost of ocean transportation of the dairy products or other agricultural commodities used in the exchange. The CCC and GSA are negotiating the barter arrangement with the GOJ.

III. FINANCIAL STATUS OF THE NATIONAL DEFENSE STOCKPILE TRANSACTION FUND

All monies from the sale of stockpile materials are placed in the GSA-managed National Defense Stockpile Transaction Fund. From its inception in Fiscal Year 1979 through September 30, 1983, sales receipts totaled \$404.6 million. During that same period, Congress approved the utilization of \$277.6 million to purchase stockpile materials, leaving an unappropriated balance of \$127.0 million to help finance future acquisitions.

Of the \$277.6 million available, \$267.0 million has been obligated to finance the purchase of several materials from numerous world sources (see Figure 2). The balance between available and obligated funds, \$10.6 million, will be used to acquire stockpile materials in Fiscal Year 1984. It is anticipated that a Fiscal Year 1984 spending level of \$120 million will be approved by the Congress.

| Material | Unit | Quantity | Value | Country of Origin |
|------------------------------|-------|------------|---------------|-------------------|
| Bauxite, Metallurgical Grade | LDT | 3,000,000 | \$127,841,000 | Jamaica |
| Bauxite, Refractory Grade | LCT | 25,327 | 3,890,000 | China |
| Beryllium | LB | 60,000 | 14,340,000 | Domestic |
| Cobalt | LB | 11,700,000 | 113,791,000 | Zaire & Zambia |
| Platinum-Iridium | TR OZ | 9,600 | 3,518,000 | South Africa |
| Quinidine | OZ | 273,387 | 904,000 | Netherlands |
| Rubber | LT | 398 | 408,000 | Various* |
| Tantalum Minerals | LB TA | 40,164 | 1,487,000 | Various** |
| Vanadium | STV | 101 | 840,000 | Domestic |
| Total Obligations | | | \$267,019,000 | |

Figure 2

Expenditures from the Fund since its inception

*Malaysia, Indonesia, and Thailand

**Brazil, Australia, Germany, Thailand, Holland, Zaire, Mozambique, Nigeria, Malaysia, and Canada

IV. STOCKPILE PROGRAM SUPPORT ACTIVITIES

Overview

The Strategic and Critical Materials Stock Piling Act provides that a stock of strategic and critical materials be held to decrease dependence upon foreign sources of supply in times of emergency. Executive Order 12155 vests the primary responsibility for planning the stockpile program in the Director of the Federal Emergency Management Agency (FEMA).

The Stock Piling Act requires that the stockpile inventory be sufficient to cover U.S. needs for not less than three years of a national emergency. The President's approved stockpile policy guidance provides assumptions regarding changes in a wartime civil economy, wartime foreign trade patterns, shipping losses, wartime political and economic stability of foreign nations, and alternate foreign and domestic production levels for stockpile materials.

These guidelines are followed in determining the stockpile goals which represent the difference between estimated supply and projected requirements for each strategic material. Periodic review and updating of the goals are required by the President's policy to ensure a current estimate of our Nation's vulnerability to resource shortages during an emergency.

The stockpile inventory is compared with the goals in Figure 3. Major restructuring of the stockpile inventory is necessary because most of the materials now in inventory were acquired during the 1950's. To fill the goals at September 30, 1983, prices would require purchase of additional materials valued at approximately \$9.8 billion. The stockpile inventory contains \$6.9 billion of the needed materials for a total goal value of \$16.7 billion. Since the stockpile inventory is valued at \$11.1 billion, there is an excess not held for goals of \$4.2 billion.

billions of dollars (rounded)

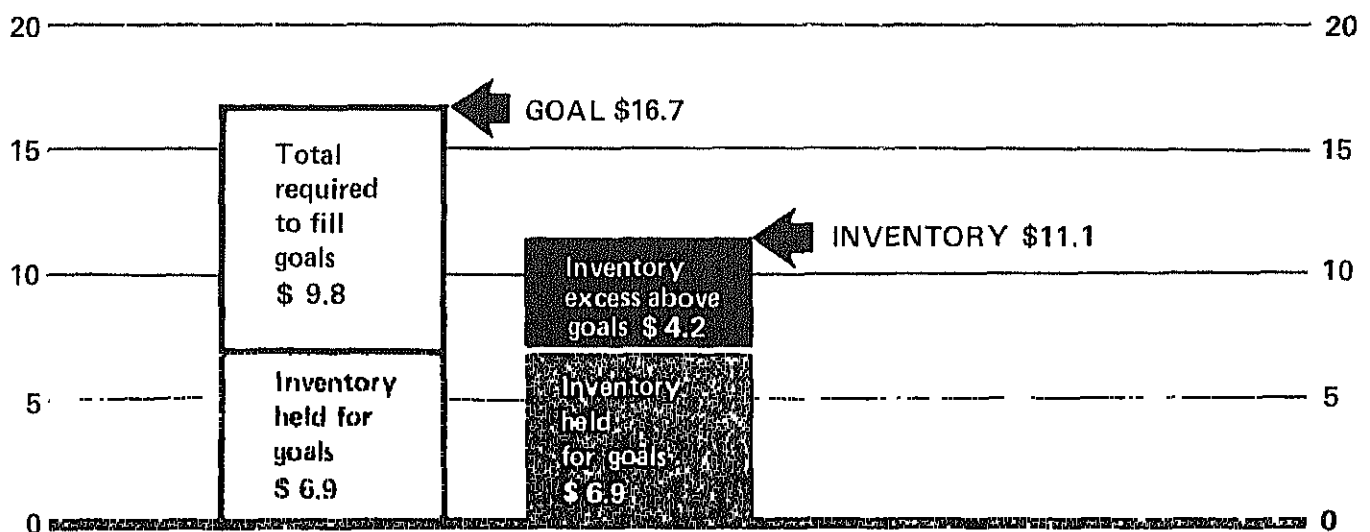
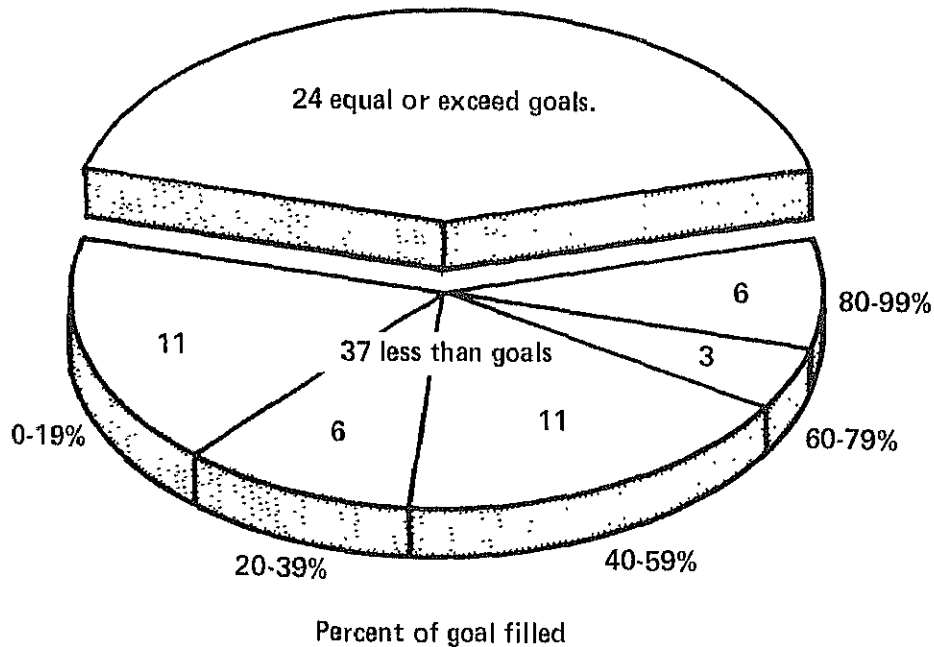


Figure 3

Restructuring of stockpile to meet goals.

As shown in Figure 4, the 61 family groups and individual materials in the stockpile can be divided into two categories:

- (1) 24 groups and individual materials with inventory equal to or greater than the goals.
- (2) 37 groups and individual materials with inventory less than the goal. Of these, 17 goals are over 50 percent filled.



Percent of goal filled

Figure 4

Status of the 61 family groups and individual materials in the stockpile inventory toward meeting the 1980 goals.

In March of 1981, the President announced the implementation of a formal acquisition program in furtherance of the stockpile restructuring effort. As a result of that announcement, FEMA published a list of 15 priority items to be purchased. Figure 5 provides a current values comparison (goal to inventory) and purchase activity during the report period.

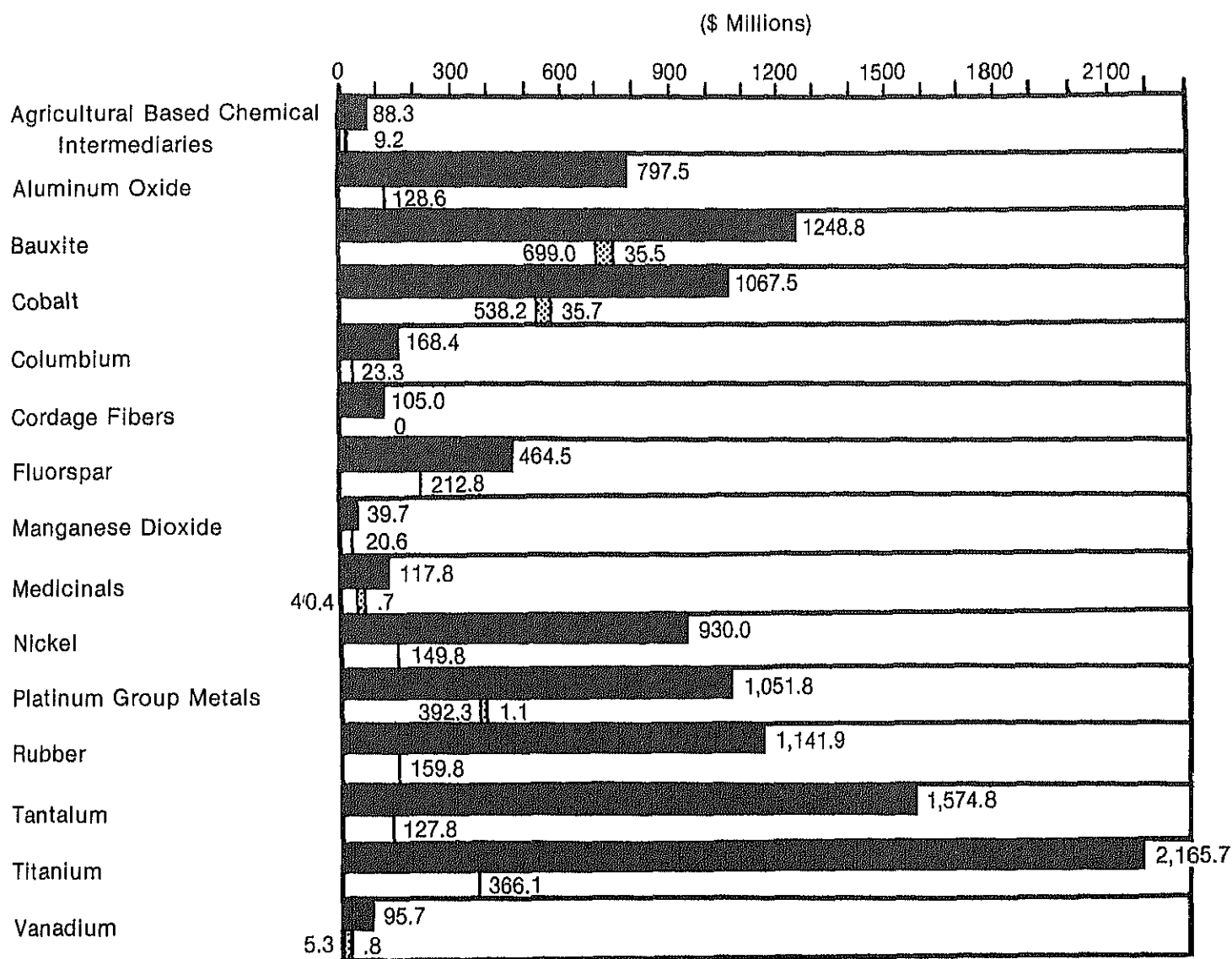
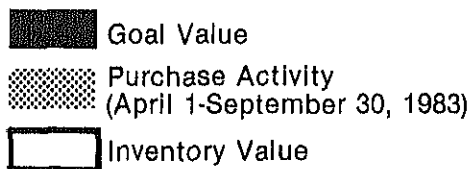


Figure 5

Status of goal accomplishment - 15 Priority Items



Annual Materials Plan

Pursuant to Section 11(b) of the Strategic and Critical Materials Stock Piling Act, the management implementation plan for restructuring the stockpile is provided through the development of the Annual Materials Plan (AMP). The AMP is the result of a major interagency effort to develop each year a list of acquisition and disposal actions for stockpile materials. The AMP process is conducted by the AMP Steering Committee chaired by FEMA. The Departments of Agriculture, Commerce, Defense, Energy, the Interior, State, Treasury, the Central Intelligence Agency, GSA, Office of Management and Budget (OMB), and the National Security Council serve as designated members. The AMP is developed in a manner that balances national security stockpile requirements against the need to avoid undue market disruption and fit within budget limitations.

The AMP process is initiated within the Resources Preparedness Office of FEMA, which provides a list of goals, shortfalls, excesses, and priorities to GSA. After an evaluation of the market outlook, the Market and Technical Services Division of GSA proposes quantities of commodities for acquisition or disposal. These proposals are provided to the two subcommittees, which furnish their suggested revisions to the full committee.

The two subcommittees and highlights of their duties are:

Strategic Implications—chaired by DoD. The other designated members are the Central Intelligence Agency, the Department of Energy, and FEMA. The primary function of this subcommittee is to determine if any of the materials proposed for the AMP will be affected by anticipated changes in defense requirements.

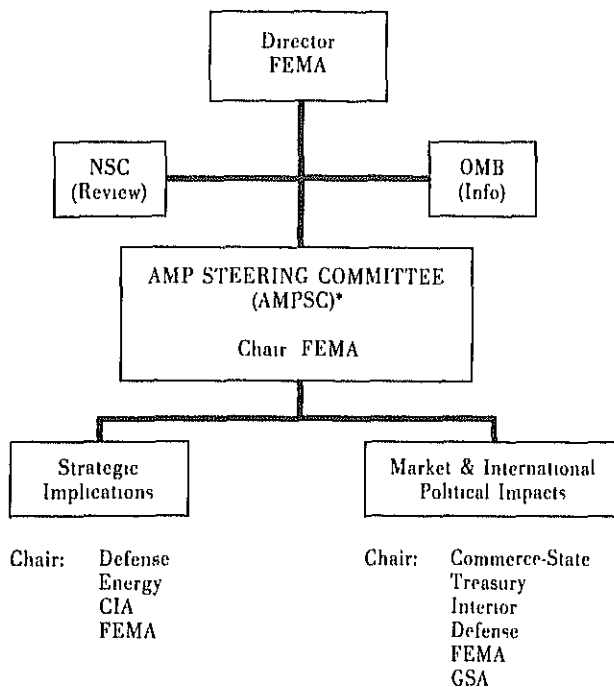
Market and International Political Impacts—co-chaired by the Departments of Commerce and State. The other designated members

are the Departments of the Treasury, the Interior, DoD, FEMA, and GSA. Under the leadership of the Department of Commerce (DOC), this subcommittee evaluates on a case-by-case basis the effects that stockpile acquisitions and disposals will have upon domestic and international commodity markets. Significant trends and areas where stockpile activities could lead to a commodity market disruption are examined. This subcommittee develops market impact statements with assistance from the Department of the Interior (Bureau of Mines) and DOC (Bureau of Industrial Economics and the International Trade Administration).

Under the leadership of the Department of State, this subcommittee also determines the international economic and political impacts of stockpile acquisitions and disposals. In particular, the subcommittee determines the impact that stockpile activities could have on earnings of international producers and producer countries, on international trade patterns, and on international agreements. The results are then tendered to the steering committee. After the steering committee completes its deliberations, the AMP is submitted by the Director of FEMA to the National Security Council (NSC) for review. Simultaneously, a copy is provided to the OMB for information. Any further revisions are made jointly by the NSC and FEMA. Then, the AMP is prepared in final form and submitted to the House and Senate Armed Services Committees.

The AMP for Fiscal Year 1985 was under development during the reporting period. The plan will contain proposed acquisitions and disposals of stockpile materials for Fiscal Year 1985 and estimates of these activities for the four forward years (Fiscal Years 1986-1989). Information on the materials and associated quantities for acquisitions and disposals remains classified until invitations to bid are announced. During the period covered by this report, no amendments to the Fiscal Year 1984 AMP were proposed to the House and Senate Armed Services Committees.

ANNUAL MATERIALS PLAN (AMP) STRUCTURE



* AMPSC MEMBERS

Federal Emergency Management Agency (FEMA)
 Department of the Interior
 Department of the Treasury
 Central Intelligence Agency (CIA)
 General Services Administration (GSA)
 Office of Management & Budget (OMB)
 Department of State
 Department of Energy
 Department of Defense
 Department of Commerce
 Department of Agriculture
 National Security Council (NSC)

Legislation

During the report period, the following legislation was introduced which impacted the stockpile program.

Appropriations: Funds for operating the NDS and for acquiring new stockpile materials were considered. On September 28, 1983, the Senate and House passed the Continuing Appropriations Bill which continued funding at the Fiscal Year 1983 level of \$120 million through November 10, 1983.

Guayule: H.R. 2733, a bill to extend and improve the existing program of research, development, and demonstration in the production and manufacture of guayule rubber and to broaden such program to include other critical agricultural materials, was introduced on April 26. On April 27, the Subcommittee on Department Operations, House Agriculture Committee, approved for full committee action H.R. 2733. The House passed H.R. 2733, amended, on May 17, 1983. On June 23, the Senate Committee on Agriculture reported, H.R. 2733, with amendments, and an amendment to the title, and on July 28, the Senate temporarily laid aside consideration of H.R. 2733. S. 1393, a bill to extend and make technical corrections to the existing

program of research, development, and demonstration in the production and manufacture of guayule rubber was introduced on May 26.

Barter: There was substantial interest in barter during the report period. H.R. 3544, a bill to amend the Strategic and Critical Materials Stock Piling Act to facilitate the use of barter in the acquisition of strategic and critical materials for the NDS was introduced. Several other bills, S. 1683, to facilitate the efficient use of barter in managing agricultural commodities and the stocks of the NDS, and S. 1703, to require the Commodity Credit Corporation (CCC) to accept, under certain conditions during Fiscal Years 1984 and 1985, offers to exchange needed strategic and critical materials for surplus dairy stocks, were also introduced. A proposed amendment was submitted to H.R. 2733 which added a new section entitled, "Barter of Surplus Dairy Products for Strategic and Critical Materials." H.R. 3991, a bill to facilitate the efficient use of barter in managing agricultural commodities and the stocks of the NDS, was also introduced during the report period.

National Defense Stockpile Silver: On April 15, the Senate Committee on Banking concluded

hearings on S. 269, a bill to authorize the Secretary of the Treasury to reissue Morgan silver dollars and silver dollar bullion coins from silver now in the NDS. On April 12, a similar bill, H.R. 2473, was introduced which would provide for the disposal of silver from the NDS through the issuance of silver coins.

Miscellaneous: On May 5, it was announced that the Senate Committee on Energy and Natural Resources would conduct extensive hearings on the geopolitics of strategic and critical materials. Hearings were held starting in May.

Other bills considered during the report period included bills on copper, goal methodology, assessment of strategic and critical materials and national minerals and materials policy.

Research and Development

Reducing United States dependency on foreign sources for strategic and critical materials in times of national emergency is the primary purpose of the stockpile program. Other means of approaching this problem instead of stockpiling are constantly being explored. Some of these include cost-reducing innovations in production and recovery or recycling technology, the development of domestic sources of supply, and development of economically feasible substitutes.

Domestic Sources of Supply: The Bureau of Mines, Department of the Interior, recently published a report, "The Domestic Supply of Critical Materials," which summarizes the major factors governing the adequacy of national mineral supplies. The Bureau also issued 15 "Mineral Commodity Profiles" which include statistical data and detailed discussions on strategic use and industry problems for stockpile commodities. The Bureau also provided the funding for a recently published report on mineral availability in Alaska, entitled, "Mineral Terranes of Alaska." All of these publications supply information necessary to policy development for the NDS.

Investigation of Mineral Deposits: The Bureau of Mines continued investigations of selected strategic and critical mineral occurrences in Alaska. In addition to the Bureau's field studies for chromite in the Chugach Range, industry sources provided metallurgical samples, geological, geophysical, and geochemical data, and drill logs from several chromite properties, including a massive sulfide prospect in the Alaska Range, a chromite property and several placer gold-platinum prospects in central Alaska, the Bornite copper-cobalt deposit in the Brooks Range, and a copper-nickel-platinum group metals property in southeast Alaska.

Field work in the Bear Mountain area, Alaska, indicated an extensive sulfide zone of tungsten, molybdenum, and tin mineralization that also contains traces of columbium, lead, and silver. Bureau engineers investigated base metal cobalt deposits in the Haines and Glacier Bay areas of southeast Alaska. However, unseasonably stormy weather late in the field season precluded helicopter services and hampered more intensive efforts.

The Bureau, jointly with the Geological Survey, was completing Congressionally mandated reconnaissance for mineral potential of withdrawn lands managed by the Forest Service of the Department of Agriculture. By the end of the Fiscal Year, the Bureau of Mines and the U.S. Geological Survey summarized nearly 20 years of effort in a report covering mineral assessments on about 45 million acres in 800 study areas. Current efforts are directed to lands proposed for wilderness held by the Bureau of Land Management of the Department of the Interior at a rate of about 2 million acres per year. Investigations are similar to those conducted on Forest Service lands and are made to determine mineral potential of the study areas and include determinations of potential sources of strategic and critical minerals.



SUPERALLOY SCRAP

ZINC

MELT AT 850° C

DISTILL ZINC FOR RECYCLE

POWDER CONTAINING NICKEL, COBALT,
CHROMIUM, MOLYBDENUM, TUNGSTEN

Ceramics such as silicon nitride (above left) and silicon carbide are potential substitute materials in high temperature applications such as gas turbine environments which presently require alloys (above right) containing critical materials such as chromium and cobalt.

Scrap Recovery: Another potential domestic source is scrap recovery. Each year thousands of tons of critical metals such as cobalt, chromium, tungsten, and titanium are lost in superalloy scrap from obsolete and worn out aircraft and land-based turbines. Superalloys are designed to resist oxidation and dissolution, making recovery technically difficult; the Bureau of Mines currently is studying this problem. Their studies have shown that the rate of metal dissolution in leach solutions can be markedly increased by first forming intermetallic compounds with superalloy scrap and either aluminum or zinc (see photo).

The Bureau of Mines is also exploring ways of recovering cobalt and nickel from recycled acid

leach solutions at domestic copper cementation plants. Currently, approximately 650 tons of cobalt per year are potentially recoverable from a single recycled stream at one copper producer. Their research has shown that a combination of ion exchange and solvent extraction may be effective in separating the cobalt and nickel as well as copper from such leach solutions.

The Bureau of Mines has been successful in separating columbium from titanium after dissolution, and a patent is pending on this process. Columbium is used primarily in superalloys and high strength steels. This is an especially important item as there are no domestic sources of high grade columbium.

Substitutes: The development of substitute materials also can serve to reduce United States dependency on foreign sources of supply. A technique developed by the Bureau of Mines, using a Bureau-patented milling process, has produced contamination-free, ultrafine silicon carbide powders with good high temperature properties (see photo). The potential exists to substitute these powders for such metals as chromium and cobalt in gas turbines for automobiles, jet airplanes, and power generators. Additionally, preliminary sintering tests by the Naval Research Laboratory indicate that the Bureau powders can be hot pressed with minor additions of boron and carbon at lower temperatures than those required for commercially available powder. The Norton Company, under a memorandum of agreement with the Bureau, is currently performing characterization studies.

Revision of Data

The Department of Commerce (DOC) is continuing to lead the interagency working group, which

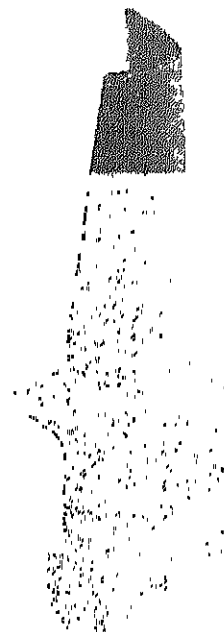
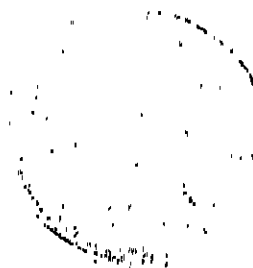
has obtained the assistance of industrial, academic, and research experts through the National Materials Advisory Board and the American Society for Metals, in assessing the quality of existing stockpile materials and developing recommendations for the optimum forms in which to hold stockpile materials.

Purchase Guidelines

During this period the DOC provided statistical data on the consumption, domestic production capacity, and supply of stockpile materials and the preparation and publication of stockpile materials purchase specifications.

The Office of Stockpile Management, GSA, is an active participant in the Interagency Committee for Stockpile Purchase Specifications and Special Instructions (chaired by DOC), which developed an updated specification for cobalt during this reporting period.

U.S. Bureau of Mines process whereby superalloy scrap is combined with zinc by melting to form intermetallic compounds after which the critical metals are separated from the zinc in the form of a metallic powder.



Management

The stockpile management functions in Section 6 of the Strategic and Critical Materials Stock Piling Act of 1979 were delegated by Executive Order 12155 to the Administrator of General Services. The Federal Property Resources Service (FPRS) in the General Services Administration (GSA) is assigned the disposal, rotation, acquisition, market analysis, quality assurance, receiving, storage, maintenance, security, environmental control, and shipping activities of the stockpile program.

Quality Assessment: The Quality Assessment Program, Office of Stockpile Management, GSA, began a pilot project to make an in-depth evaluation of ribbed smoked sheet rubber that has been stored for as long as 30 years. The results of these findings will determine any necessary action to be taken in the rubber inventory. In addition, there are 103 lots of quinine and quinidine sulfates that have been selected and sampled and are ready to be sent to a laboratory to determine the quality of the material against current specifications. Quinine and quinidine sulfate are materials which could deteriorate with time and should be checked periodically. During the report period, projects also were initiated to begin repackaging 9,000 short tons of packaged commodities that had been in storage for up to 35 years. These projects are part of an overall program to continually monitor and safeguard stockpile materials.

Foreign Trade Activities: To assist in restructuring the NDS, the Administrator of General Services has been delegated authority by the United States Trade Representative to waive certain purchasing prohibitions contained in the Trade Agreement Act. These prohibitions involve purchases from countries other than those designated under that Act. Waivers will be requested, on a case-by-case basis, to purchase from nondesignated countries when the United States or designated countries cannot provide responsive offers (i.e., quantities offered are insufficient to meet solicitation requirements), or when no offers can be obtained.

Purchases

Contracts were awarded for purchase of beryllium, cobalt, iridium, quinidine sulfate, and vanadium pentoxide. The total value of these contracts was \$52.7 million. In addition, funds totaling \$35.5 million were obligated to honor a previous payment commitment in connection with the Fiscal Year 1982 barter for Jamaican bauxite and to initiate activity for acquiring additional Jamaican bauxite by barter.

Beryllium: Brush Wellman has agreed to supply the National Defense Stockpile with 60,000 pounds of beryllium metal in the form of hot-pressed powder block. Powdered beryllium will be pressed, under high temperatures and pressures, into large cylindrical blocks suitable for nuclear and aerospace applications. Deliveries to the stockpile will occur during Fiscal Year 1984, with the blocks being sent from Brush Wellman's plant at Elmore, Ohio. The value of the beryllium award was \$14,340,000.

Cobalt: Two contracts for cobalt metal were signed, with one contract for 4.0 million pounds awarded to the State Marketing Company of Zaire, and the other for 2.5 million pounds awarded to the State Marketing Company of Zambia. Both awards were made at the lowest bid price, \$5.50 per pound, for a total purchase of \$35,750,000. All the metal will be delivered as broken cathodes. The broken cathodes have the purity required for the production of jet engines.

Iridium: Awards were made for 3,600 ounces, for a total of \$1,140,000 under existing Basic Ordering Agreements (contracts complete except for prices). This high-value iridium was purchased as a metal powder packed in jars. One of the more important uses for iridium metal is as instrument housing on aerospace vehicles.

Quinidine Sulfate: Medical-quality quinidine sulfate has been ordered from Henley and Company. This powdered medicine is produced in France for the purpose of regulating abnormal

heartbeats. A total of 199,298 ounces of quinidine sulfate will be delivered to the National Defense Stockpile. The value of the contract was \$667,604.

Vanadium Pentoxide; An \$839,840 contract was awarded to the Associated Metals and Minerals Corporation for 362,000 pounds of vanadium pentoxide (101 short tons of contained vanadium metal). This concentrate will be produced in Freeport, Texas. Vanadium is used principally as an alloy in steel and titanium to improve strength.

Jewel Bearings: The Government-owned William Langer Jewel Bearing Plant located at Rolla, North Dakota, produces jewel bearings for sale to the stockpile and to defense contractors. Funds to purchase jewel bearings for the NDS come from a different appropriation than the National Defense Stockpile Transaction Funds. Jewel bearings and related items ordered from the plant by defense contractors during the period totaled 772,316 units. Orders from defense contractors for related items totaled 163,201 units. In Fiscal Year 1981, FEMA requested that the Langer Plant undertake a project for the pilot production of dosimeters, a radiation measuring device. Plans for providing the required facilities and equipment were developed during Fiscal Year 1982. The facilities and equipment are now in place and manufacturing activities are expected to commence in Fiscal Year 1984. Present plans call for pilot production of 10,000 low-range and 10,000 high-range dosimeters.

Deliveries Under Prior Contracts: Deliveries of 580,298 long wet tons of metallurgical grade Jamaican bauxite ordered under contract with the Bauxite and Alumina Trading Company of Jamaica Limited (BATCO) were made to sites in Gregory, Texas, and Gramercy, Louisiana. Of this amount, more than 380,301 long dry tons have been inspected and accepted into the stockpile. The total contract calls for 1,000,000 long dry tons.

Iridium in the amount of 1,200 troy ounces was sampled, analyzed, accepted, and placed in vault storage.

Four hundred tons of Technically Specified Rubber were sampled and analyzed before being stored

in three locations. The material will be undergoing periodic testing to study the effects of long-term storage under the various environmental conditions in the three storage locations.

Sales

Sales during the report period totaled approximately \$36.2 million from the National Defense Stockpile. As shown in Table 1, 16 materials were sold during the report period. The largest dollar volume of sales, over \$33 million, was in industrial diamond stones, manganese, mercury, tin, and tungsten. The total value of sales increased by more than \$11 million from the prior reporting period.

Diamond, Industrial Stones: Interest in the sales program was strong. Sales of industrial diamond stones increased to 1,004,841 carats valued at \$11.2 million, compared with 492,851 carats valued at \$7.9 million for the last reporting period. During Fiscal Year 1984, 1,500,000 carats of excess industrial diamond stones will be offered for sale by GSA. The remaining 192,000 carats of industrial diamond crushing bort excess to the stockpile goal are expected to be sold during Fiscal Year 1984.

Manganese, Chemical Grade: Demand is decreasing for chemical grade ores. A total of 26,931 short dry tons, valued at \$2.1 million, was sold from the National Defense Stockpile. The ore is used primarily in the production of hydroquinone in a process that generates byproduct manganese sulfate. This process is slowly being replaced by more efficient production processes.

Mercury: Disposal under the Omnibus Budget Reconciliation Act of 1981 totaled 4,500 flasks, valued at \$1.3 million. The rate of sales of mercury from the Government stockpile indicated a turnaround in that market. One of the primary factors was the decreased availability of reclaimed or salvaged mercury from several chemical processing plants that closed or curtailed operations.

Tin: Sales of excess tin increased 30 percent over the previous reporting period. Sales for the period totaled 1,285 long tons, valued at \$17.6 million,

compared to 997 long tons and \$12.9 million for the previous six-month period. Although the sales gain coincided with the rebound in United States industrial output, the modest sales volume reflected the presence of abundant tin inventories available to industrial consumers.

Tungsten Ores & Concentrates: Sales of tungsten picked up in September, but few traders were encouraged about the future of the market. Sales for the period totaled 364,069 pounds, valued at \$1.6 million.

TABLE 1
DISPOSAL OF NATIONAL DEFENSE STOCKPILE INVENTORY MATERIALS
April 1 - September 30, 1983

| Material | Unit | Quantity Sold | Value (Dollars) | Balance of Disposal Authorization Quantity |
|---|------|---------------|-----------------|--|
| Antimony | ST | 557 | \$ 788,958 | 1,137 |
| Asbestos, Amosite | ST | -- | -- | 30,024 |
| Asbestos, Crocidolite | ST | -- | -- | 831 |
| Asbestos, Chrysotile | ST | -- | -- | 4,000 |
| Celestite | SDT | -- | -- | 13,415 |
| Diamond, Industrial Stones | KT | 1,004,841 | 11,196,945 | 1,517,454 |
| Diamond, Industrial Crushing Bort | KT | -- | -- | 192,817 |
| Kyanite | SDT | -- | -- | 1,187 |
| Iodine | LB | 15,000 | 75,750 | 1,711,386 |
| Manganese, Chemical Grade | SDT | 26,391 | 2,104,376 | 124,761 |
| Manganese, Dioxide, Battery, Natural | SDT | 200 | 6,000 | 79,996 |
| Manganese, Metallurgical Grade | SDT | 3,000 | 50,490 | 666,246 |
| Mercuric Oxide | LB | -- | -- | 712,202 |
| Mercury | FL | 4,500 | 1,280,789 | 36,924 |
| Mica, Muscovite Film 1st & 2nd Quality | LB | 27,649 | 96,772 | 84,939 |
| Mica, Muscovite Block Stained & Lower | LB | -- | -- | 100,000 |
| Mica, Muscovite Splittings | LB | 111,650 | 114,055 | 5,001,061 |
| Mica, Phlogopite Splittings | LB | 5,500 | 8,646 | 738,884 |
| Quartz Crystals | LB | 3,466 | 22,791 | 1,798,324 |
| Rare Earth Oxide | SDT | 1 | 1,000 | 487 |
| Talc, Block & Lump | ST | -- | -- | 886 |
| Talc, Ground | ST | -- | -- | 1,089 |
| Thorium Nitrate | LB | -- | -- | 6,055,529 |
| Tin | LT | 1,285 | 17,619,714 | 22,434 |
| Tungsten Ores & Concentrates | LB W | 364,069 | 1,603,122 | 60,833,687 |
| Vegetable Tannin, Chestnut | LT | 328 | 220,816 | 5,591 |
| Vegetable Tannin, Quebracho | LT | 1,151 | 789,178 | 86,535 |
| Vegetable Tannin, Wattle | LT | 351 | 248,556 | 1 |
| Total from National Defense Stockpile Inventories | | | \$36,227,958 | |

STOCKPILE INVENTORY

Explanation of Table 2

The National Defense Stockpile total inventory as given in Table 2 excludes quantities that were sold but not shipped from depots to the purchasers. In the Statistical Supplement (available from the General Services Administration) the inventory is listed as "Total Inventory in Storage" with a separate line for "Unshipped Sales."

The Table 2 inventory quantities combine stockpile and nonstockpile grade materials, while separate lines can be found for each type in the Statistical Supplement. Nonstockpile grade material may vary only slightly from the stockpile grade and in some cases is temporarily credited toward goals.

For some materials where a goal deficit occurs, the excess of another form of the material is held to offset the shortage as indicated in the footnotes at the end of Table 2. The term "offset" means allocating one form of a material for an equivalent amount of another form.

Materials are grouped by "families," and a summary line for each basic family group is included. The materials have been grouped in each family according to their status as raw materials, semifinished products or finished products that contain the same common ingredient. The values shown in the summary line for each family group are expressed in the basic unit common to all members of the group. In all but three cases, this basic unit is the metal equivalent for each form. There is a different conversion factor for each form because each requires different technology and incurs different conversion losses. The factors used for calculating these equivalent amounts and the calculation procedures are in Appendix 2.

Market values are prices at which comparable materials are being traded, or in the absence of trading, values are estimates. They are not necessarily the amount that would be realized if the material were sold.

Abbreviations

| | | | |
|--------|--|----------|--|
| AMA Lb | - Anhydrous Morphine Alkaloid (Pounds) | LCT | - Long Calcined Ton |
| AvOz | - Avoirdupois Ounce | LDT | - Long Dry Ton |
| FL | - Flask (76-Pound) | LT | - Long Ton |
| KT | - Karat | MT | - Metric Ton |
| LB | - Pound | PC | - Piece |
| LB Cb | - Pounds of Contained Columbium | SDT | - Short Dry Ton |
| LB Co | - Pounds of Contained Cobalt | ST | - Short Ton |
| LB Mo | - Pounds of Contained Molybdenum | ST Ni+Co | - Short Tons of Contained Nickel plus Cobalt |
| | ds of Contained Tantalum | ST V | - Short Tons of Contained Vanadium |
| | Contained Tungsten | TrOz | - Troy Ounces |

Table 2

NATIONAL DEFENSE STOCKPILE INVENTORY OF STRATEGIC AND CRITICAL MATERIALS

September 30, 1983

| Commodity | Unit | Goal | Inventory | Value of Inventory (Millions \$) | Quantity After Crediting Offset Excess | Deficit |
|--|-------------|------------|------------|----------------------------------|--|------------|
| 1. Aluminum Metal Group | ST Al Metal | 7,150,000 | 3,813,767 | 737.8 | | 3,336,233 |
| Alumina | ST | 0 | 0 | - | | - |
| Aluminum | ST | 700,000 | 2,080 | 3.3 | | 697,920 |
| Bauxite, Metal Grade, Jamaica Type | LDT | 21,000,000 | 10,458,344 | 470.6 | | 10,541,656 |
| Bauxite, Metal Grade, Surinam Type | LDT | 6,100,000 | 5,299,597 | 263.9 | | 800,403 |
| 2. Aluminum Oxide, Abrasive Grain Group | ST Ab Grain | 638,000 | 259,124 | 128.6 | | 378,876 |
| Aluminum Oxide, Abrasive Grain | ST | 0 | 50,904 | 63.6 | a | |
| Aluminum Oxide, Fused, Crude | ST | 0 | 249,867 | 65.0 | a | |
| Bauxite, Abrasive Grade | LCT | 1,000,000 | 0 | - | | a |
| 3. Antimony | ST | 36,000 | 39,842 | 66.9 | 3,842 | |
| 4. Asbestos, Amosite | ST | 17,000 | 42,540 | 29.8 | 25,540 | |
| 5. Asbestos, Chrysotile | ST | 3,000 | 10,751 | 19.5 | 7,751 | |
| 6. Bauxite, Refractory | LCT | 1,400,000 | 199,926 | 40.4 | | 1,200,074 |
| 7. Beryllium Metal Group | ST Be Metal | 1,220 | 1,061 | 198.8 | | 159 |
| Beryl Ore (11% BeO) | ST | 18,000 | 17,987 | 21.8 | | 13 |
| Beryllium Copper Master Alloy | ST | 7,900 | 7,387 | 87.6 | | 513 |
| Beryllium Metal | ST | 400 | 229 | 88.9 | | 171 |
| 8. Bismuth | LB | 2,200,000 | 2,081,298 | 4.0 | | 118,702 |
| 9. Cadmium | LB | 11,700,000 | 6,328,809 | 5.9 | | 5,371,191 |
| 10. Chromium, Chemical and Metallurgical Group | ST Cr Metal | 1,353,000 | 1,324,923 | 979.1 | | 28,077 |
| Chromite, Chemical Grade Ore | SDT | 675,000 | 242,414 | 13.6 | | c |
| Chromite, Metallurgical Grade Ore | SDT | 3,200,000 | 2,488,043 | 237.6 | | c |
| Chromium, Ferro, High Carbon | ST | 185,000 | 402,696 | 238.4 | c | |
| Chromium, Ferro, Low Carbon | ST | 75,000 | 318,892 | 418.0 | c | |
| Chromium, Ferro, Silicon | ST | 90,000 | 58,357 | 43.3 | | c |
| Chromium, Metal | ST | 20,000 | 3,763 | 28.2 | | c |
| 11. Chromite, Refractory Grade Ore | SDT | 850,000 | 391,414 | 42.6 | | 458,586 |

Table 2 (continued)

| Commodity | Unit | Goal | Inventory | Value of Inventory (Millions \$) | Quantity After Crediting Offset Excess | Deficit |
|---|-------------|-------------|------------|----------------------------------|--|-------------|
| 12. Cobalt | LB Co | 85,400,000 | 45,995,714 | 574.9 | | 39,404,286 |
| 13. Columbium Group | LB Cb Metal | 4,850,000 | 2,532,419 | 23.3 | | 2,317,581 |
| | LB Cb | 100,000 | 21,372 | .6 | | 78,628 |
| | LB Cb | 5,600,000 | 1,806,218 | 15.5 | | d |
| | LB Cb | 0 | 930,911 | 5.6 | d | |
| | LB Cb | 0 | 44,851 | 1.6 | d | |
| 14. Copper | ST | 1,000,000 | 29,048 | 43.9 | | 970,952 |
| 15. Cordage Fibers, Abaca | LB | 155,000,000 | 0 | - | | 155,000,000 |
| 16. Cordage Fibers, Sisal | LB | 60,000,000 | 0 | - | | 60,000,000 |
| 17. Diamond, Industrial Group | KT | 29,700,000 | 37,753,967 | 418.8 | 8,028,490 | |
| | PC | 60,000 | 25,473 | 1.1 | | 34,527 |
| | KT | 22,000,000 | 22,192,880 | 38.8 | 192,880 | |
| | KT | 7,700,000 | 15,535,614 | 378.9 | 7,835,614 | |
| 18. Fluorspar, Acid Grade | SDT | 1,400,000 | 895,983 | 161.3 | | 504,017 |
| 19. Fluorspar, Metallurgical Grade | SDT | 1,700,000 | 411,738 | 51.5 | | 1,288,262 |
| 20. Graphite, Natural, Ceylon, Amorphous Lump | ST | 6,300 | 5,499 | 10.7 | | 801 |
| 21. Graphite, Natural, Malagasy, Crystalline | ST | 20,000 | 17,899 | 53.7 | | 2,101 |
| 22. Graphite, Natural, Other Than Ceylon & Malagasy | ST | 2,800 | 2,804 | 2.0 | 4 | |
| 23. Iodine | LB | 5,800,000 | 7,510,930 | 51.8 | 1,710,930 | |
| 24. Jewel Bearings | PC | 120,000,000 | 71,783,893 | 61.6 | | 48,216,107 |
| 25. Lead | ST | 1,100,000 | 601,025 | 282.5 | | 498,975 |
| 26. Manganese, Dioxide, Battery Grade Group | SDT | 87,000 | 218,205 | 20.6 | 131,205 | |
| | SDT | 62,000 | 215,394 | 16.4 | e | |
| | SDT | 25,000 | 3,011 | 4.2 | | e |

Table 2 (continued)

| Commodity | Unit | Goal | Inventory | Value of Inventory (Millions \$) | Quantity After Excess | Crediting Offset Deficit |
|---|-------------|------------|------------|----------------------------------|-----------------------|--------------------------|
| 27. Manganese, Chemical & Metallurgical Group | ST Mn Metal | 1,500,000 | 1,958,966 | 488.7 | 393,038 | |
| Manganese Ore, Chemical Grade | SDT | 170,000 | 194,653 | 16.0 | 24,653 | f |
| Manganese Ore, Metallurgical Grade | SDT | 2,700,000 | 3,367,103 | 160.2 | | |
| Manganese, Ferro, High Carbon | ST | 439,000 | 599,978 | 262.5 | f | |
| Manganese, Ferro, Low Carbon | ST | 0 | 0 | - | - | |
| Manganese, Ferro, Medium Carbon | ST | 0 | 28,920 | 20.8 | f | |
| Manganese, Ferro, Silicon | ST | 0 | 23,574 | 9.9 | f | |
| Manganese Metal, Electrolytic | ST | 0 | 14,172 | 19.3 | f | |
| 28. Mercury | FL | 10,500 | 178,315 | 53.5 | 167,815 | |
| 29. Mica Muscovite Block, Stained & Better | LB | 6,200,000 | 5,212,445 | 27.8 | | 987,555 |
| 30. Mica Muscovite Film, 1st & 2nd Qualities | LB | 90,000 | 1,226,297 | 14.4 | 1,136,297 | |
| 31. Mica Muscovite Splittings | LB | 12,630,000 | 18,046,225 | 27.1 | 5,416,225 | |
| 32. Mica Phlogopite Block | LB | 210,000 | 130,745 | .7 | | 79,255 |
| 33. Mica Phlogopite Splittings | LB | 930,000 | 1,673,234 | 3.3 | 743,234 | |
| 34. Molybdenum Group | LB Mo | 0 | 0 | - | - | |
| Molybdenum Disulphide | LB Mo | 0 | 0 | - | - | |
| Molybdenum, Ferro | LB Mo | 0 | 0 | - | - | |
| 35. Morphine Sulphate and Related Analgesics | AMA LB | 130,000 | 71,303 | 26.2 | | 58,697 |
| Crude | AMA LB | 0 | 31,795 | 4.9 | g | |
| Refined | AMA LB | 130,000 | 39,508 | 21.3 | | g |
| 36. Natural Insulation Fibers | LB | 1,500,000 | 0 | - | | 1,500,000 |
| 37. Nickel | ST Ni+Co | 200,000 | 32,209 | 149.8 | | 167,791 |
| 38. Platinum Group Metals, Iridium | Tr Oz | 98,000 | 23,590 | 7.8 | | 74,410 |
| 39. Platinum Group Metals, Palladium | Tr Oz | 3,000,000 | 1,255,008 | 191.4 | | 1,744,992 |
| 40. Platinum Group Metals, Platinum | Tr Oz | 1,310,000 | 452,642 | 194.2 | | 857,358 |
| 41. Pyrethrum | LB | 500,000 | 0 | - | | 500,000 |
| 42. Quartz Crystals | LB | 600,000 | 2,060,336 | 12.4 | 1,460,336 | |
| 43. Quinidine | Av Oz | 10,100,000 | 1,874,504 | 6.7 | | 8,225,496 |

| Commodity | Unit | Goal | Inventory | Value of Inventory (Millions \$) | Quantity After Crediting Offset Excess | Deficit |
|---|------------------------------|------------|-------------|----------------------------------|--|-----------|
| 44. Quinine | Av Oz | 4,500,000 | 3,246,164 | 8.2 | | 1,253,836 |
| 45. Ricinoleic/Sebacic Acid Products | LB | 22,000,000 | 12,524,242 | 9.2 | | b |
| 46. Rubber | MT | 864,000 | 120,875 | 159.8 | | 743,125 |
| 47. Rutile | SDT | 106,000 | 39,186 | 12.7 | | 66,814 |
| 48. Sapphire and Ruby | KT | 0 | 16,305,502 | .2 | 16,305,502 | |
| 49. Silicon Carbide, Crude | ST | 29,000 | 80,550 | 36.2 | 51,550 | |
| 50. Silver, Fine | Tr Oz | 0 | 137,505,946 | 1,651.4 | 137,505,946 | |
| 51. Talc, Stearite Block & Lump | ST | 28 | 1,081 | .4 | 1,053 | |
| 52. Tantalum Group | LB Ta Metal | 7,160,000 | 2,426,387 | 127.8 | | 4,733,613 |
| | Tantalum, Carbide Powder | 0 | 28,688 | 4.7 | h | |
| | Tantalum Metal | 0 | 201,133 | 44.2 | h | |
| | Tantalum Minerals | 8,400,000 | 2,584,195 | 78.9 | | h |
| 53. Thorium Nitrate | LB | 600,000 | 7,131,812 | 19.6 | 6,531,812 | |
| 54. Tin | MT | 42,700 | 191,310 | 2,558.7 | 148,610 | |
| 55. Titanium Sponge | ST | 195,000 | 32,331 | 353.4 | | 162,669 |
| 56. Tungsten Group | LB W Metal | 50,666,000 | 78,870,238 | 484.7 | 28,204,238 | |
| | Tungsten Carbide Powder | 2,000,000 | 2,032,942 | 23.3 | i | |
| | Tungsten, Ferro | 0 | 2,025,361 | 24.8 | i | |
| | Tungsten, Metal Powder | 1,600,000 | 1,898,911 | 24.5 | i | |
| | Tungsten Ores & Concentrates | 55,450,000 | 85,679,220 | 412.1 | i | |
| 57. Vanadium Group | ST V Metal | 8,700 | 541 | 6.5 | | 8,159 |
| | Vanadium, Ferro | 1,000 | 0 | - | | 1,000 |
| | Vanadium Pentoxide | 7,700 | 541 | 6.5 | | 7,159 |
| 58. Vegetable Tannin Extract, Chestnut | LT | 5,000 | 14,732 | 9.9 | 9,732 | |
| 59. Vegetable Tannin Extract, Quebracho | LT | 28,000 | 134,322 | 92.3 | 106,322 | |
| 60. Vegetable Tannin Extract, Wattle | LT | 15,000 | 15,001 | 10.6 | i | |
| 61. Zinc | ST | 1,425,000 | 378,316 | 350.9 | | 1,046,684 |

Offsets

- a. Aluminum Oxide, Fused Crude: Hold 50,904 ST of aluminum oxide abrasive grain and 249,867 ST of aluminum oxide fused crude as offset against 379,253 LCT of bauxite abrasive grade.
- b. Ricinoleic/Sebacic Acid Products: Sebacic acid inventory is credited toward goal at the rate of 2.5 to 1.
- c. Chromium Group, Chemical and Metallurgical Grades: Metallurgical grade ore goal is 3,200,000 SDT of specification grade; inventory 1,956,824 SDT; shortfall 1,243,176 SDT.
- (1) Hold 217,695 ST of Fe Cr high carbon against shortfall of 544,238 SDT of specification grade ore.
 - (2) Hold 243,892 ST of Fe Cr low carbon against 609,730 SDT of specification grade ore.
 - (3) Hold 89,208 SDT of non-specification grade metallurgical ore against the balance of the 89,208 SDT specification grade ore shortfall.
 - (4) Hold 47,466 SDT of non-specification grade metallurgical ore against a shortfall of 31,644 ST of Fe Cr Si.
 - (5) Hold 56,830 SDT of non-specification grade metallurgical ore against a shortfall of 16,237 ST of chromium metal.
 - (6) Hold 337,715 SDT of non-specification grade metallurgical ore against 337,715 SDT of chemical grade ore shortfall.
- d. Columbium Group:
- (1) Hold 930,911 pounds Cb as Fe Cb against 1,095,189 pounds Cb as concentrates.
 - (2) Hold 44,851 lb Cb as Cb metal against 52,766 lb Cb as concentrates.
- e. Manganese, Dioxide, Battery Grade Group:
- Hold 21,989 SDT of manganese, battery grade, natural ore against a shortfall of 21,989 SDT of manganese, battery grade, synthetic dioxide.
- f. Manganese Group, Chemical and Metallurgical Grades: Metallurgical grade ore goal is 2,700,000 SDT; inventory 2,409,160 SDT; shortfall 290,840 SDT of stockpile grade ore.
- (1) Hold 14,172 ST of Mn metal against 35,430 SDT of metallurgical ore.
 - (2) Hold 23,574 ST of Fe Mn Si against 42,433 SDT of metallurgical ore.
 - (3) Hold 28,920 ST of Fe Mn medium carbon against 57,840 SDT of metallurgical ore.
 - (4) Hold 77,569 ST of Fe Mn high carbon against 155,138 SDT of metallurgical ore.
 - (5) Hold remaining 83,304 ST of Fe Mn high carbon against reduction of ore value in desired inventory mix.
- g. Opium: Hold 31,795 AMA lb of opium gum against 31,795 AMA lb of opium salt goal.
- h. Tantalum Group:
- (1) Hold 201,133 lb Ta as Ta metal against 237,337 lb Ta as concentrates.
 - (2) Hold 28,688 lb Ta as Ta C against 33,852 lb Ta as concentrates.
- i. Tungsten Group:
- (1) WC powder goal is 2,000,000 lb W; stockpile grade inventory 1,921,167 lb W; shortfall 78,833 lb W. Hold 111,775 lb W as non-specification grade WC to offset 78,243 lb W as WC specification grade (assume 70% recovery of usable W).
 - (2) W metal powder goal is 1,600,000 lb W; inventory stockpile grade 1,566,964 lb W; shortfall 33,036 lb W. Non-stockpile grade W metal powder inventory is 331,947 lb W. Assume 70% recovery as usable material, then 331,947 x .70 = 232,363 lb W. Hold 47,194 lb W as non-specification grade powder to offset shortfall of 33,036 stockpile grade W powder.
 - (3) Hold balance of non-stockpile grade W powder 232,363 - 33,036 = 199,327 lb W as powder against 234,209 lbs W as concentrate.
 - (4) Hold 840,752 lbs W as Fe W stockpile grade against 987,884 lb W as concentrate. Hold 1,184,609 lb W nonstockpile grade Fe W at 70 percent recoverable against 974,341 lb W concentrate.

APPENDIX I

STRATEGIC AND CRITICAL MATERIALS STOCK PILING ACT

(50 U.S.C. 98 *et. seq.*)

SEC. 1. This Act may be cited as the 'Strategic and Critical Materials Stock Piling Act'.

FINDINGS AND PURPOSE

SEC. 2. (a) The Congress finds that the natural resources of the United States in certain strategic and critical materials are deficient or insufficiently developed to supply the military, industrial, and essential civilian needs of the United States for national defense.

(b) It is the purpose of this Act to provide for the acquisition and retention of stocks of certain strategic and critical materials and to encourage the conservation and development of sources of such materials within the United States and thereby to decrease and to preclude, when possible, a dangerous and costly dependence by the United States upon foreign sources for supplies of such materials in times of national emergency.

MATERIALS TO BE ACQUIRED: PRESIDENTIAL AUTHORITY AND GUIDELINES

SEC. 3. (a) The President shall determine from time to time (1) which materials are strategic and critical materials for the purposes of this Act, and (2) the quality and quantity of each such material to be acquired for the purposes of this Act and the form in which each such material shall be acquired and stored. Such materials when acquired, together with the other materials described in section 4 of this Act, shall constitute and be collectively known as the National Defense Stockpile (hereinafter in this Act referred to as the 'stockpile').

(b) The President shall make the determinations required to be made under subsection (a) on the basis of the following principles:

(1) The purpose of the stockpile is to serve the interest of national defense only and is not to be used for economic or budgetary purposes.

(2) The quantities of the materials stockpiled should be sufficient to sustain the United

States for a period of not less than three years in the event of a national emergency.

(c) The quantity of any material to be stockpiled under this Act, as determined under subsection (a), may not be revised unless the Committees on Armed Services of the Senate and House of Representatives are notified in writing of the proposed revision and the reasons for such revision at least 30 days before the effective date of such revision.

MATERIALS CONSTITUTING THE NATIONAL DEFENSE STOCKPILE

SEC. 4. (a) The stockpile consists of the following materials:

(1) Materials acquired under this Act and contained in the national stockpile on the day before the date of the enactment of the Strategic and Critical Materials Stock Piling Revision Act of 1979.

(2) Materials acquired under this Act on or after the date of the enactment of the Strategic and Critical Materials Stock Piling Revision Act of 1979.

(3) Materials in the supplemental stockpile established by section 104(b) of the Agricultural Trade Development and Assistance Act of 1954 (as in effect from September 21, 1959, through December 31, 1966) on the day before the date of the enactment of the Strategic and Critical Materials Stock Piling Revision Act of 1979.

(4) Materials acquired by the United States under the provisions of section 303 of the Defense Production Act of 1950 (50 U.S.C. App. 2093) and transferred to the stockpile by the President pursuant to subsection (f) of such section.

(5) Materials transferred to the United States under section 663 of the Foreign Assistance Act of 1961 (22 U.S.C. 2423) that have been determined to be strategic and critical materials for the purposes of this Act and that are allocated by the President under subsection (b) of such section for stockpiling in the stockpile.

(6) Materials acquired by the Commodity Credit Corporation and transferred to the stockpile under section 4(h) of the Commodity Credit Corporation Charter Act (15 U.S.C. 714b(h)).

(7) Materials acquired by the Commodity Credit Corporation under paragraph (2) of section 103(a) of the Act entitled 'An Act to provide for greater stability in agriculture; to augment the marketing and disposal of agricultural products; and for other purposes', approved August 28, 1954 (7 U.S.C. 1743(a)), and transferred to the stockpile under the third sentence of such section.

(8) Materials transferred to the stockpile by the President under paragraph (4) of section 103(a) of such Act of August 28, 1954.

(9) Materials transferred to the stockpile under subsection (b).

(b) Notwithstanding any other provision of law, any material that (1) is under the control of any department or agency of the United States, (2) is determined by the head of such department or agency to be excess to its needs and responsibilities, and (3) is required for the stockpile shall be transferred to the stockpile. Any such transfer shall be made without reimbursement to such department or agency, but all costs required to effect such transfer shall be paid or reimbursed from funds appropriated to carry out this Act.

AUTHORITY FOR STOCKPILE OPERATIONS

SEC. 5. (a) (1) Except for acquisitions made under the authority of paragraph (3) or (4) of section 6(a), no funds may be obligated or appropriated for acquisition of any material under this Act unless funds for such acquisition have been authorized by law. Funds appropriated for such acquisition (and for transportation and other incidental expenses related to such acquisition) shall remain available until expended, unless otherwise provided in appropriation Acts.

(2) If for any fiscal year the President proposes certain stockpile transactions in the annual materials plan submitted to Congress for that year under section 11(b) and after that plan is submitted the President proposes (or Congress requires) a significant change in any such transaction, or a significant

transaction not included in such plan, no amount may be obligated or expended for such transaction during such year until the President has submitted a full statement of the proposed transaction to the appropriate committees of Congress and a period of 30 days has passed from the date of the receipt of such statement by such committees or until each such committee, before the expiration of such period, notifies the President that it has no objection to the proposed transaction. In computing any 30-day period for the purpose of the preceding sentence, there shall be excluded any day on which either House of Congress is not in session because of an adjournment of more than three days to a day certain.

(b) Except for disposals made under the authority of paragraph (4) or (5) of section 6(a) or under section 7(a), no disposal may be made from the stockpile (1) unless such disposal, including the quantity of the material to be disposed of, has been specifically authorized by law, or (2) if the disposal would result in there being a balance in the National Defense Stockpile Transaction Fund in excess of \$1,000,000,000 or, in the case of a disposal to be made after September 30, 1983, if the disposal would result in there being a balance in the fund in excess of \$500,000,000.

(c) There is authorized to be appropriated such sums as may be necessary to provide for the transportation, processing, refining, storage, security, maintenance, rotation, and disposal of materials contained in or acquired for the stockpile. Funds appropriated for such purposes shall remain available to carry out the purposes for which appropriated for a period of two fiscal years, if so provided in appropriation Acts.

STOCKPILE MANAGEMENT

SEC. 6. (a) The President shall—

(1) acquire the materials determined under section 3(a) to be strategic and critical materials;

(2) provide for the proper storage, security, and maintenance of materials in the stockpile;

(3) provide for the refining or processing of any material in the stockpile when necessary to convert such material into the form most suitable for storage and subsequent disposition;

(4) provide for the rotation of any material in the stockpile when necessary to prevent deterioration of such material by replacement of such material with an equivalent quantity of substantially the same material;

(5) subject to the notification required by subsection (d)(2), provide for the timely disposal of materials in the stockpile that (A) are excess to stockpile requirements, and (B) may cause a loss to the Government if allowed to deteriorate; and

(6) subject to the provisions of section 5(b), dispose of materials in the stockpile the disposal of which is specifically authorized by law.

(b) Except as provided in subsections (c) and (d), acquisition of strategic and critical materials under this Act shall be made in accordance with established Federal procurement practices, and, except as provided in subsections (c) and (d) and in section 7(a), disposal of materials from the stockpile shall be made by formal advertising or competitive negotiation procedures. To the maximum extent feasible—

(1) competitive procedures shall be used in the acquisition and disposal of such materials;

(2) efforts shall be made in the acquisition and disposal of such materials to avoid undue disruption of the usual markets of producers, processors, and consumers of such materials and to protect the United States against avoidable loss; and

(3) disposal of such materials shall be made for domestic consumption.

(c)(1) The President shall encourage the use of barter in the acquisition of strategic and critical materials for, and the disposal of materials from, the stockpile when acquisition or disposal by barter is authorized by law and is practical and in the best interest of the United States.

(2) Materials in the stockpile, the disposition of which is authorized by law, shall be available for transfer at fair market value as payment for expenses (including transportation and other incidental expenses) of acquisition of materials, or of refining, processing, or rotating materials, under this Act.

(3) To the extent otherwise authorized by law, property owned by the United States may be bartered for materials needed for the stockpile.

(d)(1) The President may waive the applicability of any provision of the first sentence of subsection (b) to any acquisition of material for, or disposal of material from, the stockpile. Whenever the President waives any such provision with respect to any such acquisition or disposal, or whenever the President determines that the application of paragraph (1), (2), or (3) of such subsection to a particular acquisition or disposal is not feasible, the President shall notify the Committees on Armed Services of the Senate and House of Representatives in writing of the proposed acquisition or disposal at least thirty days before any obligation of the United States is incurred in connection with such acquisition or disposal and shall include in such notification the reasons for not complying with any provision of such subsection.

(2) Materials in the stockpile may be disposed of under subsection (a)(5) only if the Committees on Armed Services of the Senate and House of Representatives are notified in writing of the proposed disposal at least thirty days before any obligation of the United States is incurred in connection with such disposal.

(e) The President may acquire leasehold interests in property, for periods not in excess of twenty years, for storage, security, and maintenance of materials in the stockpile.

SPECIAL DISPOSAL AUTHORITY OF THE PRESIDENT

SEC. 7. (a) Materials in the stockpile may be released for use, sale, or other disposition—

(1) on the order of the President, at any time the President determines the release of such materials is required for purposes of the national defense; and

(2) in time of war declared by the Congress or during a national emergency, on the order of any officer or employee of the United States designated by the President to have authority to issue disposal orders under this subsection, if such officer or employee determines that the release of such materials is required for purposes of the national defense.

(b) Any order issued under subsection (a) shall be promptly reported by the President, or by the officer or employee issuing such order, in writing, to the

Committees on Armed Services of the Senate and House of Representatives.

MATERIALS DEVELOPMENT AND RESEARCH

SEC. 8. (a)(1) The President shall make scientific, technologic, and economic investigations concerning the development, mining, preparation, treatment, and utilization of ores and other mineral substances that (A) are found in the United States, or in its territories or possessions, (B) are essential to the national defense, industrial, and essential civilian needs of the United States, and (C) are found in known domestic sources in inadequate quantities or grades.

(2) Such investigations shall be carried out in order to—

(A) determine and develop new domestic sources of supply of such ores and mineral substances;

(B) devise new methods for the treatment and utilization of lower grade reserves of such ores and mineral substances; and

(C) develop substitutes for such essential ores and mineral products.

(3) Investigations under paragraph (1) may be carried out on public lands and, with the consent of the owner, on privately owned lands for the purpose of exploring and determining the extent and quality of deposits of such minerals, the most suitable methods of mining and beneficiating such minerals, and the cost at which the minerals or metals may be produced.

(b) The President shall make scientific, technologic, and economic investigations of the feasibility of developing domestic sources of supplies of any agricultural material or for using agricultural commodities for the manufacture of any material determined pursuant to section 3(a) of this Act to be a strategic and critical material or substitutes therefor.

NATIONAL DEFENSE STOCKPILE TRANSACTION FUND

SEC. 9. (a) There is established in the Treasury of the United States a separate fund to be known as

the National Defense Stockpile Transaction Fund (hereinafter in this section referred to as the 'fund').

(b)(1) All moneys received from the sale of materials in the stockpile under paragraphs (5) and (6) of section 6(a) shall be covered into the fund. Such moneys shall remain in the fund until appropriated.

(2) Moneys covered into the fund under paragraph (1) shall be available, when appropriated therefor, only for the acquisition of strategic and critical materials under section 6(a)(1) of this Act (and for transportation related to such acquisition).

(3) Moneys in the fund, when appropriated, shall remain available until expended, unless otherwise provided in appropriation Acts.

(c) All moneys received from the sale of materials being rotated under the provisions of section 6(a)(4) or disposed of under section 7(a) shall be covered into the fund and shall be available only for the acquisition of replacement materials.

ADVISORY COMMITTEES

SEC. 10. (a) The President may appoint advisory committees composed of individuals with expertise relating to materials in the stockpile or with expertise in stockpile management to advise the President with respect to the acquisition, transportation, processing, refining, storage, security, maintenance, rotation, and disposal of such materials under this Act.

(b) Each member of an advisory committee established under subsection (a) while serving on the business of the advisory committee away from such member's home or regular place of business shall be allowed travel expenses, including per diem in lieu of subsistence, as authorized by section 5703 of title 5, United States Code, for persons intermittently employed in the Government service.

REPORTS TO CONGRESS

SEC. 11 (a) The President shall submit to the Congress every six months a written report detailing operations under this Act. Each such report shall include—

(1) information with respect to foreign and domestic purchases of materials during the preceding 6-month period;

(2) information with respect to the acquisition and disposal of materials under this Act by barter, as provided for in section 6(c) of this Act, during such period;

(3) a statement and explanation of the financial status of the National Defense Stockpile Transaction Fund and the anticipated appropriations to be made from the fund during the next fiscal year; and

(4) such other pertinent information on the administration of this Act as will enable the Congress to evaluate the effectiveness of the program provided for under this Act and to determine the need for additional legislation.

(b) The President shall submit to the appropriate committees of the Congress each year with the Budget submitted to Congress pursuant to Section 201(a) of the Budget and Accounting Act, 1921 (31 U.S.C. 11(a)), for the next fiscal year a report containing an annual materials plan for the operation of the stockpile during such fiscal year and the succeeding four fiscal years. Each such report shall include details of planned expenditures for acquisition of strategic and critical materials during such period (including expenditures to be made from appropriations from the general fund of the Treasury) and of anticipated receipts from proposed disposals of stockpile materials during such period.

DEFINITIONS

SEC. 12. For the purposes of this Act:

(1) The term 'strategic and critical materials' means materials that (A) would be needed to supply the military, industrial, and essential civilian needs of the United States during a national emergency, and (B) are not found or produced in the United States in sufficient quantities to meet such need.

(2) The term 'national emergency' means a general declaration of emergency with respect to the national defense made by the President or by the Congress.

IMPORTS

SEC. 13. Notwithstanding any other provision of law, on and after January 1, 1972, the President may not prohibit or regulate the importation into the United States of any material determined to be strategic and critical pursuant to the provisions of this Act, if such material is the product of any foreign country or area not listed as a Communist-dominated country or area in general headnote 3(d) of the Tariff Schedules of the United States (19 U.S.C. 1202), for so long as the importation into the United States of material of that kind which is the product of such Communist-dominated countries or areas is not prohibited by any provision of law.

APPENDIX 2

CALCULATION PROCEDURE FOR FAMILY GROUPINGS OF MATERIALS

The following example is designed to help the reader perform and understand the conversions and calculations used in preparing summary lines for basic family groupings. The purpose in using basic units for each of the families or groups of materials is to place the content of the primary material into a common denominator for easier comparison.

In time of emergency, there would be a need for a mix of various forms of each metal element. The stockpile goal for a metal is a mix of products at various stages of upgrading. The goal is calculated by examining expected wartime requirements, availability, and domestic capacity to produce each of the upgraded forms.

There is a different factor for converting each of the forms into a common denominator, usually the basic metal equivalent. The conversion factors are different because process conversion losses vary. The calculations and conversions used for the aluminum oxide abrasive grain group are shown as an example.

The aluminum oxide abrasive grain group has a surplus of aluminum oxide abrasive grain and of aluminum oxide fused crude but has a deficit of bauxite abrasive grade. Both aluminum oxide abrasive grain and fused crude are used to offset the shortfall in the abrasive grade bauxite but in different proportions for each because of upgrading processing losses.

PROCEDURE

1. Both aluminum oxide abrasive grain and aluminum oxide fused crude are upgraded products of abrasive grain bauxite. In converting each of these materials from bauxite a process loss was incurred. Therefore, to use them as offsets against the deficit in abrasive grade bauxite, conversion factors greater than 1.0 are used to convert them back to equivalent amounts of bauxite.

2. The available surplus of aluminum oxide abrasive grain is 50,904 ST. To calculate the abrasive grade bauxite equivalent in LCT, multiply by the conversion factor: 1.55999 times 50,904 equals 79,410 LCT of bauxite equivalent.

3. The available surplus aluminum oxide fused crude is 249,867 ST. To convert this into bauxite equivalent in LCT, multiply by the conversion factor: 1.200 times 249,867 equals 299,840 LCT bauxite equivalent.

4. Add the two bauxite equivalents to find the total offset: 79,410 plus 299,840 equals 379,250 LCT.

5. The bauxite abrasive grade goal is 1,000,000 LCT; therefore subtract the offset of 379,250 LCT leaving a deficit of 620,750 LCT.

Factors Used for Converting Materials Into Family Groups

| Materials | Unit | Multiple Factor | Basic Family Unit |
|---|--------|-----------------|--|
| Alumina | ST | 0.518 | Metal Equivalent, Aluminum |
| Aluminum Oxide, Fused, Crude | ST | 0.833 | Aluminum Oxide, Abrasive Grain |
| Bauxite, Abrasive Grade | LCT | 0.641 | Aluminum Oxide, Abrasive Grain S.T. |
| Bauxite, Metal Grade, Jamaica Type | ST | 0.231 | Metal Equivalent, Aluminum |
| Bauxite, Metal Grade, Surinam Type | ST | 0.264 | Metal Equivalent, Aluminum |
| Beryl Ore (11% BeO) | ST | 0.028 | Metal Equivalent, Beryllium |
| Beryllium Copper Master Alloy (4% Be) | ST | 0.04 | Metal Equivalent, Beryllium |
| Chromite, Chemical Grade Ore | ST | 0.286 | Metal Equivalent, Chromium |
| Chromite, Metallurgical Grade Ore | ST | 0.286 | Metal Equivalent, Chromium |
| Chromium, Ferro, High Carbon | ST | 0.714 | Metal Equivalent, Chromium |
| Chromium, Ferro, Low Carbon | ST | 0.714 | Metal Equivalent, Chromium |
| Chromium, Ferro, Silicon | ST | 0.429 | Metal Equivalent, Chromium |
| Columbium, Concentrates | LB | 0.850 | Metal Equivalent, Columbium |
| Diamond Dies, Small | PC | 0.50 | Carat |
| Manganese, Dioxide, Battery Grade | SDT | 1.000 | Manganese, Dioxide, Battery Grade, Synthetic |
| Manganese, Chemical Grade | ST | 0.400 | Metal Equivalent, Manganese |
| Manganese, Metallurgical Grade | ST | 0.400 | Metal Equivalent, Manganese |
| Manganese, Ferro, High Carbon | ST | 0.800 | Metal Equivalent, Manganese |
| Manganese, Ferro, Medium Carbon | ST | 0.800 | Metal Equivalent, Manganese |
| Manganese, Ferro, Silicon | ST | 0.720 | Metal Equivalent, Manganese |
| Opium Gum | AMA LB | 1.000 | Opium Salts |
| Tantalum Minerals | LB | 0.85 | Metal Equivalent, Tantalum |
| Tungsten Ores and Concentrates | LB | 0.851 | Metal Equivalent, Tungsten |